

**EA00-020**

<b><u>DATE</u></b>	<b><u>SUBJECT</u></b>	<b><u>PAGE NUMBERS</u></b>
<b>08-10-00</b>	<b>OPENING RESUME</b> (Prompted by PE00-006)	<b>(2-3)</b>
<b>04-03-01</b>	<b>Letter to Volkswagen from ODI. Request for information concerning alleged ignition switch malfunction in certain 1996 Passat and Jetta.</b>	<b>(4-12)</b>
<b>05-21-01</b>	<b>Letter to ODI from VW. Request for an extension.</b>	<b>(13)</b>
<b>06-21-01</b>	<b>Letter to VW from ODI. EXTENSION</b>	<b>(14)</b>
<b>10-09-02</b>	<b>CLOSING RESUME</b> <b>ENGINEERING ANALYSIS CLOSING REPORT</b>	<b>RECALL 02V-256</b> <b>(15)</b> <b>(16-22)</b>

ODI Action Number: **EA00-020**

Date: **08-10-2000**

Subject: **VOLKSWAGEN OF AMERICA  
1996 PASSATS AND JETTAS**

## **ALLEGED LIGHTS AND/OR WINDSHIELD WIPER FAILURE**

This file contains consumer letters received by the National Highway Traffic Safety Administration which complain of the alleged defect that is the subject of this Engineering Analysis. It also contains correspondence between this agency and the manufacturer on the subject. Portions of that correspondence may be withheld where the manufacturer has claimed that they are confidential pursuant to the Freedom of Information Act, 5 U.S.C. § 552(b)(4), which exempts from disclosure confidential commercial and financial information. Additional documents relating to this Engineering Analysis may exist, but have not been included in this public file.

If you have any information or concerns you would like to discuss with NHTSA staff, please call the

**toll free AUTO SAFETY HOTLINE**

**800-424-9393**

(in the Washington, DC metropolitan area, please call 202-366-0123)

Also, if you wish to discuss the investigation with NHTSA staff, the HOTLINE contact representative will have a technical staff member return your telephone call.



# ODI RESUME

INVESTIGATION: EA00-020

DATE OPENED: 10-AUG-00

SUBJECT: Failure of the lights and/or windshield wipers, resulting in obscured vision

PROMPTED BY: Owner Complaints (PE00-006)

PRINCIPAL INVESTIGATOR: *David Langjahr*

MANUFACTURER: Volkswagen of America

MODELS: Passats and Jettas

MODEL YEARS: 1996

VEHICLE POPULATION: Passats, 19,356; Jettas, 88,992

PROBLEM DESCRIPTION: The complainants allege that while driving the lights (and sometimes, wipers) fail. This failure increases the risk of a vehicle crash due to obscured vision.

## FAILURE REPORT SUMMARY

	ODI	MANUFACTURER	TOTAL
COMPLAINTS:	4	11	15
CRASHES:	0	0	0
INJURIES:	0	0	0
WARRANTY CLAIMS:	0	4476*	4476*

ACTION: An Engineering Analysis has been opened.

ENGINEER: *D. Langjahr*

DIV CHF: *P. Boyd*

OFC DIR: *[Signature]*

8-9-00

DATE

8/9/00

DATE

8/10/00

DATE

\* This information was given verbally, and reflects the maximum number of warranty claims (related to ignition switch replacement/repair) which may be applicable. Per VW, "VW's warranty system is not organized in a manner which allows us [i.e., VW] to extract claims relating or potentially relating to the alleged defect."

*4476*

## SUMMARY:

ODI opened the Preliminary Evaluation based on the receipt of four reports of lighting failure, with three of the four also reporting windshield wiper failure. Two of the four failures were intermittent. Reportedly, jiggling the ignition key sometimes restored function. The ignition switch feeds an accessory relay, which in turn feeds many electrical subsystems.

VW was unable to furnish hard copies of the warranty claim data and reported verbally that there are over 4,000 claims which may be applicable. This means that over 4 % of the vehicles may have had applicable warranty work performed. This is an extremely high rate.

For owner complaints, average mileage and time to failure is 28K miles and 32 months, respectively.

Technical Bulletin 95-07, dated 11-24-95, covering MY93 and later Passats lists causes for power circuit loss as shift lock cable misadjusted, switch or lock binding or defective key; the Jetta ignition switch cylinder was changed in mid 1996.

ODI has recorded nine recalls in the last nine years for lighting or wiper failure. The majority of state motor vehicle regulations in the United States require functioning lights and wipers.

*2*

An EA is being opened to gather further appropriate information. Of particular concern is a clarification of the warranty data. Once that data is obtained and analyzed, ODI will assess the safety implications and risks concerning these failures.

#

*Full*

Mailed April 3, 2001

**CERTIFIED MAIL**  
**RETURN RECEIPT REQUESTED**

Wolfgang Groth, Process Leader  
Volkswagen of America  
Engineering and Environmental Office  
Mail Code 2A03  
3800 Hamlin Road  
Auburn Hills, MI 48326

NSA-13d1  
EA00-020

Dear Mr. Groth:

This letter is to advise you that the Office of Defects Investigation (ODI) of the National Highway Traffic Safety Administration (NHTSA) has upgraded Preliminary Evaluation PE00-006, which concerns alleged ignition switch malfunction in certain Model Year (MY) 1996 Passat and Jetta vehicles, and to request certain information.

ODI has received three additional reports regarding the alleged defect. This office has also received three similar complaints on Model Year 1995 to 1997 Passats and 1998 Cabriolets. Enclosed for your information is a copy of each of these reports.

Unless otherwise stated in the text, the following definitions apply to this information request:

- **Subject vehicles:** all 1996 Volkswagen Passats and Jettas manufactured for sale in the United States.
- **VW:** Volkswagen of America, its parent, Volkswagen AG (of Germany), all of their past and present officers and employees, whether assigned to their principal offices or any of its field or other locations, specifically including all of its divisions, subsidiaries (whether or not incorporated) and affiliated enterprises and all of its headquarters, regional, zone and other offices and its employees, and all agents, contractors, consultants, attorneys and law firms and other persons engaged directly or indirectly (e.g., employee of a consultant) by or under the control of VW (specifically including all business units and persons previously referred to), who are or were, in or after 1994, involved in any way with any of the following activities related to the alleged defect or this investigation, in the subject vehicles:

*4/*

- a. design, engineering, analysis, modification or production (e.g. quality control);
  - b. testing, assessment or evaluation;
  - c. consideration or recognition of potential or actual defects, reporting, record-keeping and information management, (e.g., complaints, field reports, warranty information, part sales), analysis, claims, or lawsuits; and/or
  - d. communication to, from or intended for zone representatives, fleets, dealers, or other field locations, specifically including but not limited to people who have the capacity to obtain information from dealers.
- **Subject component**: the ignition switch, lighting and windshield wiper circuitry and associated and related parts on the subject vehicles, specifically including, but not limited to the ignition switch lock and contact assemblies.
  - **Alleged defect**: any failure, malfunction, or otherwise unsatisfactory performance of the ignition switch and supporting circuitry, mechanical or electrical components, or any subject vehicle component possibly related to the ignition switch, resulting in the headlights and/or windshield wipers losing power, permanently or intermittently, and not operating.
  - **Document**: "Document(s)" is used in the broadest sense of the word and shall mean all original written, printed, typed, recorded, or graphic matter whatsoever, however produced or reproduced, of every kind, nature, and description, and all nonidentical copies of both sides thereof, specifically including, but not limited to, papers, letters, memoranda, correspondence, communications, electronic mail (e mail) messages (existing in hard copy and/or in electronic storage), faxes, mailgrams, telegrams, cables, telex messages, notes, annotations, working papers, drafts, minutes, records, audio and video recordings, data, databases, other information bases, summaries, charts, tables, graphics, other visual displays, photographs, statements, interviews, opinions, reports, newspaper articles, studies, analyses, evaluations, interpretations, contracts, agreements, jottings, agendas, bulletins, notices, announcements, instructions, blueprints, schematics, wiring diagrams, drawings, as-builts, changes, manuals, publications, work schedules, journals, statistical data, desk, portable and computer calendars, appointment books, diaries, travel reports, lists, tabulations, computer printouts, data processing program libraries, data processing inputs and outputs, microfilms, microfiches, statements for services, resolutions, financial statements, governmental records, business records, personnel records, work orders, pleadings, discovery in any form, affidavits, motions, responses to discovery, all transcripts, administrative filings and all mechanical, magnetic, photographic and electronic records or recordings of any kind, specifically including any storage media associated with computers, specifically including, but not limited to, information on hard drives, floppy disks, backup tapes, ZIP, JAZ, CD-ROMs, CD-RW, electronic communications, specifically including but not limited to, the Internet and shall

include any drafts or revisions pertaining to any of the foregoing, all other things similar to any of the foregoing, however denominated by VW, any other data compilations from which information can be obtained, translated if necessary, into a usable form and any other documents. For purposes of this request, any document which contains any note, comment, addition, deletion, insertion, annotation, or otherwise comprises a nonidentical copy of another document shall be treated as a separate document subject to production. In all cases where original and any non-identical copies are not available, "document(s)" also means any identical copies of the original and all non-identical copies thereof. Any document, record, graph, chart, film or photograph originally produced in color must be provided in color. Furnish all documents whether verified by the manufacturer or not. If a document is not in the English language, provide both the original document and an English translation of the document.

In order for my staff to evaluate the alleged defect, certain information is required. Pursuant to 49 U.S.C. § 30166, please provide matching numbered responses to the following information requests. Please repeat the applicable request verbatim above each response. After VW's response to each request, identify the source of the information and indicate the last date the source updated the information prior to the preparation of the response. Insofar as VW has previously provided a document to ODI, VW may either produce it again, or identify the document, the document submission to ODI in which it was included and the precise location in that submission where the document is located. Previously submitted complaints and field reports from PE00-006 do not need to be provided. When documents are produced, the documents shall be produced in an identified, organized manner that corresponds with the Information Request letter (specifically including the subparts). When documents are produced and the documents would not, standing alone, be self-explanatory, the production of documents shall be supplemented and accompanied by an explanation.

The submitted information is to include, but not be limited to, all written reports or documents; transcriptions, notes, or other documentation of oral communication and telephone calls; and information contained in electronic or other storage media. For any oral communication, identify the date on which the communication took place and the names, positions, and employers of the parties involved, and relate the substance or provide a memorandum or transcript (if one is available) of the communication.

If VW cannot respond to any specific request or subpart thereof, please state the reason why it is unable to do so. If VW claims that any document or other information or material responsive to any of the following items need not be provided to NHTSA because it is privileged or the work product of an attorney, separately by information request number, for each document or other information or material, state the nature of that information or material and identify any document in which it is found by date, subject or title, name and position of the person from, and the person to whom it was sent, and the name and position of any other recipient. VW must also describe the basis for the claim, and explain why VW believes it applies.

6

In addition to hard copy, submit a copy of this letter and the responses to this letter and attachments on disks in currently common each-word-searchable, non-image, portrait-orientation, resortable data formats. Pictorial diagrams are to be avoided, if possible, except as specifically requested herein. Supported data mediums include ZIP or JAZ, floppies, CD-ROMs, CD-RW. Supported formats include WordPerfect up to version 8, Microsoft Office products through version 2000, Lotus up to version 9, Quattro Pro up to version 8, Oracle export file up to version 8. Also supported are ASCII with fixed and/or delimited variable length fields and HTML. Graphics include GIF, WPG, TIFF, JPEG and BMP. Please indicate what format each file is in. Please point out specific instances of data duplication.

If each appendix of data has more than one data set or format, please include a table of contents and explanations at the front of each appendix, and tally numbers for each appendix. Each page should be numbered consecutively by stamp or other means, in addition to protruding page tabs delimiting sections. With three-hole-punched hard copy, please do not punch out numerical data and please insure that the VIN is on each complaint or claim. Please include a VIN decoding key and a list of all acronyms used by VW.

1. Please provide the total number of 1995 and 1997 Passats and 1998 Cabriolets sold in the United States by make, model, and model year, for each calendar month.
2. State the number and provide copies of all of the following information or documents, from all sources. This should include all information in Volkswagen's possession or control, or of which it is otherwise aware, which relates or potentially relates to the alleged defect of the subject vehicles and separately to the vehicles listed in request number 1, in the U.S.
  - a. owner/fleet complaints;
  - b. field reports;
  - c. crash/incident claims;
  - d. subrogation claims;
  - e. lawsuits; and/or
  - f. third-party arbitration proceedings (where VW is a party to the arbitration).

Please list and collate your response for each category ("a" through "f") by date of claim. For the first two, please define what VW means by these terms. Please provide for each item in this response the incident date, subject vehicle mileage at time of incident (if known), approximate age of subject vehicle or model year, disposition of matter, and, where a fleet subject vehicle is involved, the name of the fleet, and the name and telephone number of a contact person at that fleet. For items "a" through "d," please provide all related information and reports whether or not VW has verified each one. For items "e" and "f," summaries are acceptable. Include owner name, address and phone number. Please identify in the summary the caption, court, docket number, and filing date of each lawsuit if a copy of the Complaint initiating the lawsuit is not provided.

If any subject vehicle complaints that, prima facie, appear to be related to the alleged defect

7



or this investigation are to be excluded from these categories, please provide reasoning for this exclusion along with supporting documentation.

3. For the subject vehicles in the U.S., and separately for the 1995, 1997 Passats and 1998 Cabriolet, state the number of warranty claims, specifically including, but not limited to extended warranty claims, requests for warranty or "goodwill," or other types of adjustments received by Volkswagen which relate or potentially relate to the alleged defect or this investigation. Order this information by calendar month and year and include the part name, part number, labor operation number, problem code, model, vehicle identification number, build month/date, dealer identification number and state, owner name, address and phone number. If there are over 100 records, include the same data in a separate enclosure, replacing the calendar month and year by the build date (month and year). All abbreviations must be well defined. Provide an ASCII file.
4. If VW has issued any service or technical bulletins, advisories, owner notification programs or other communications to dealers, zone offices, vehicle owners or field offices pertaining to the alleged defect in the vehicles listed in request number 1, provide a copy of each such document. If no such documents have been issued, so state. Please respond with the following information for each communication:
  - a. provide a complete chronological listing of all activities or events specifically including, but not limited to, incidents involving the subject component, which led VW to believe it needed to generate the communication.
  - b. provide a chronological listing of all information related to any testing through which the need for the communication was identified and/or assessed, even if the testing was being conducted for another purpose. Please provide a copy of each item listed.
  - c. provide the number of repairs and/or replacements paid for by VW that resulted from the communication identified. List your response by repairing dealer.
5. State the number of subject components or assemblies that have been sold to date in the U.S. for use on the vehicles listed in request number 1, by component name, part number (both service and engineering), supplier (name and address), calendar month of sale, model/model year and approximate total number of all vehicles for which they were intended. Specifically include data for the following numbered components:
  - a. switch cylinders, including those numbered IHM905855, 357905855B, 357905855A/B;
  - b. ignition switches, including those numbered 357905865;
  - c. shift lock cables; and/or
  - d. lock housings.
6. State whether VW ever considered substituting alternative designs or components for the ignition switch and/or supporting circuitry and components, or any subject vehicle



component possibly related to the alleged defect or this investigation. If so, identify and describe each such alternative design or component, and state:

- a. the date it was first proposed; and/or
- b. the disposition of that proposal (i.e., approved, disapproved, or still being evaluated) and the reasons for that action.

7. Identify and describe all significant modifications or changes made by, or on behalf of, VW in the manufacture, design, or material composition of the ignition switch and/or supporting circuitry and components, or any subject vehicle component that relates, or could relate to the alleged defect or this investigation. The following information must be included for each such modification or change:

- a. the date or approximate date on which the modification or change was incorporated into production;
- b. a description of the modification or change;
- c. the reason for the modification or change;
- d. the part number of the modified part;
- e. whether the original unmodified component was withdrawn from sale, and if so, when; and/or
- f. whether the modified or changed components can be interchanged with earlier production components.

8. Provide updated copies of all reports and other documents concerning tests, studies, surveys, investigations, evaluations, assessments and analyses conducted by VW or by its contractors, suppliers, or other entities, which were or which may have been related to the alleged defect or that were used in developing or manufacturing the ignition switch malfunction and/or supporting circuitry and components, or any subject vehicle component possibly related to the alleged defect, or which could otherwise relate in any way to this investigation. Identify, by name and address, the entity that conducted each such test or analysis. If any such study, survey, investigation, or analysis is ongoing, so state; provide the estimated completion date; and provide a summary report of the information known to VW at this time, and copies of any related material. For any oral communications on this subject, provide a written transcript or summary of each such communication and include a statement that identifies the participants and the date of the communication. If no such documents have been issued, so state.

9. Provide VW's assessment of the alleged defect in the vehicles listed in request number 1, specifically answering and addressing but without being limited to, the following:

- a. owner complaints, as provided to VW by NHTSA or otherwise;
- b. the causal or contributory factors which may result in the alleged defect;

9

- c. whether the alleged defect could possibly cause cascading failures of other components;
- d. the estimated or calculated Mean-Time-Between-Failures (MTBF) for the ignition switch and/or supporting circuitry and components, or any subject vehicle component possibly related to the alleged defect or this investigation;
- e. whether VW believes these failures correlate more strongly to subject vehicle age or to subject vehicle miles;
- f. any autopsy or failure analysis of failed ignition switch and/or supporting circuitry and components, or any subject vehicle component possibly related to the alleged defect or this investigation performed by or for VW;
- g. the risk to motor vehicle safety created by the alleged defect;
- h. whether there are any circumstances that would provide subject vehicle operators or others with warning of the existence of the alleged defect;
- i. whether dealers are effective in repairing the defect;
- j. whether VW sends any test kits to dealers to assist them with this alleged defect, and/or
- k. whether VW believes the root cause of the alleged defect is solved, and if so, by what actions.

For any conclusions drawn by VW regarding the above, please provide supporting documentation, separately excerpted for this purpose.

Provide a copy of all documents not specifically requested herein, which VW believes are relevant to, or which were used in formulating VW's assessment of, the alleged defect. Also, provide single-sheet "D" size or smaller schematics (not wiring diagrams) relevant to the alleged defect or this investigation, for the vehicles listed in request number 1, that allow and facilitate tracing signal paths for each conductor from the source, through every alleged defect related component and connector pin, to all loads, specifically including schematics, part numbers or details for any integrated circuits or "boxes" on the schematic. Show wire sizes and lengths, and VW's rules for wire selection.

10. State the date that VW ceased collecting information for use in responding to this Information Request. If more than one date applies, please provide the date for each information type (e.g., subject vehicle population, owner complaints, warranty, etc).

This letter is being sent to VW pursuant to 49 U.S.C. § 30166, which authorizes NHTSA to conduct any investigation that may be necessary to enforce Chapter 301 of Title 49. VW's failure to respond promptly and fully to this letter could subject VW to civil penalties pursuant to 49 U.S.C. § 30165 or lead to an action for injunctive relief pursuant to 49 U.S.C. § 30163. Other remedies and sanctions are available as well.

VW's response to this letter, in duplicate, must be submitted to this office by May 24, 2001. Please include in VW's response the identification codes referenced on page one of this letter. If VW finds that it is unable to provide all of the information requested within the time allotted,

10

VW must request an extension from Richard Boyd at (202) 366-4933 no later than five business days before the response due date. If VW is unable to provide all of the information requested by the original deadline, it must submit a partial response by the original deadline with whatever information VW then has available, even if VW has received an extension.

If VW considers any portion of its response to be confidential information, 49 CFR Part 512, "Confidential Business Information," requires that VW submit two copies of those document(s) containing allegedly confidential information (except only one copy of schematics as referred to below) and one copy of the documents from which information claimed to be confidential has been deleted, to the Office of Chief Counsel, NHTSA, Room 5219 (NCC-30), 400 Seventh Street, SW, Washington, D.C. 20590. In addition, VW must provide supporting information for the request for confidential treatment in accordance with part 512.4(b) and (e) and include the name, address, and telephone number of a representative to receive a response from the Chief Counsel.

Please contact David Langjahr of my staff at (202) 493-0210 or (preferably) by E-mail (Dlangjahr@nhtsa.dot.gov) as soon as it is known if the resulting hard copy data will be more than two copy paper boxes full (approx. 10,000 sheets), or as soon as it is known if VW plans to sample the data, or if you have any technical questions concerning this matter.

Sincerely,

Kathleen C. DeMeter, Director  
Office of Defects Investigation  
Safety Assurance

Enclosures

VOQ Nos. 535247, 705840, 855765, 856295, 865957, 869601

NSA-13DLANGJAHR:vrij:3/29/01:30210

cc:

NSA-01

NSA-13 Johnson Chron

Document\121\EAIRVW6.wpd

//

Wolfgang Groth, Process Leader  
Volkswagen of America  
Engineering and Environmental Office  
Mail Code 2A03  
3800 Hamlin Road  
Auburn Hills, MI 48326

**Volkswagen of America, Inc.**



3800 Hamlin Road  
Auburn Hills, MI 48326  
Tel. (248) 754-5000

**MAY 21 2001**

May 18, 2001

Kathleen C. DeMeter, Director  
Office of Defects Investigation  
Safety Assurance  
US Department of Transportation  
National Highway Traffic Safety Administration  
400 Seventh Street, SW  
Washington, DC 20590

Subject: NSA-13dJ / EA00-020

Dear Mrs. DeMeter,

Due to the holidays both here and in Germany we have lost some valuable time required to collect the data for the response to the EA00-020 investigation.

We have also lost time due to necessary business travel by some key individuals involved in compiling our data.

Consequently we respectfully request a 4 week extension following the due date of May 24 2001.

We will of course submit a partial response by the May 24, 2001 due date.

If you have any questions please call Peter Galvan at (248) 754-6829 or fax (248) 754-5093.

Regards

  
Kip Krügel  
Technical Director  
VWoA

13

*Boyd*

Mr. Gerhard P. Riechel  
Volkswagen of America, Inc.  
3800 Hamlin Road  
Auburn Hills, MI 48236

JUN 21 2001

NSA-13d1  
FA00-020

Dear Mr. Riechel:

We have reviewed the letters dated May 18<sup>th</sup> and June 19, 2001, requesting an extension on our IR response. This letter is to inform you that the request for an extension has been granted.

Sincerely,

*151*

Richard Boyd  
Chief, Vehicle Integrity Division  
Office of Defects Investigations

*14*



U.S. Department  
of Transportation

**National Highway  
Traffic Safety  
Administration**

## ODI RESUME

INVESTIGATION: EA00-020

DATE OPENED: AUG 10 2002 DATE CLOSED: 9-OCT-02

SUBJECT: Ignition Switch Failure Resulting in Potential Loss of  
Headlamp and Windshield Wiper Function

PROMPTED BY: PE00-006

PRINCIPAL INVESTIGATOR: Jeffrey Quandt

MANUFACTURER: Volkswagen of America

MODELS: Jetta and Passat

MODEL YEARS: 1996

VEHICLE POPULATION: 108,648

PROBLEM DESCRIPTION: The ignition switch may fail to return to the "RUN" position following engine start, resulting in potential loss of Power Accessory Circuit supplying headlamps and windshield wipers.

### FAILURE REPORT SUMMARY

	ODI	MANUFACTURER	TOTAL
COMPLAINTS:	10	28	38
CRASHES:	0	0	0
INJURIES:	0	0	0
FATALITIES:	0	0	0
OTHER:	n/a	276	276

DESCRIPTION OF OTHER: Warranty claims with indication of Power Accessory Circuit loss.

ACTION: This Engineering Analysis has been closed. Recall No. 02V-256.

Investigator:

DATE: 10/8/02

DATE: 10/8/02

DATE: 10-9-02

SUMMARY: In September 10, 2002 letter, Volkswagen notified NHTSA of a defect condition in the electrical portion of the ignition switch assembly of certain model year (MY) 1996 Volkswagen Passat passenger vehicles that may result in inoperative headlamps and windshield wipers. Volkswagen will notify owners of the problem and replace the switches with modified parts in Safety Recall 02V-256. The recall involves approximately 10,450 MY 1996 Passat vehicles built between production weeks 32 and 51 in 1995.

In addition, Volkswagen will notify owners of approximately 20,000 MY 1996-97 Passat vehicles built from week 52 in 1995 through the end of MY 1997 production and approximately 84,500 MY 1996-97 Jetta vehicles built from week 41 in 1995 through week 45 in 1996, of a Warranty Adjustment Policy covering the subject ignition system components. These vehicles, which experienced the alleged defect at significantly lower frequencies than the recalled population, will have the warranty coverage on the subject components adjusted from 2-years/24,000 miles to 8-years/100,000 miles.

ODI believes that Volkswagen's actions provide appropriate resolutions for the alleged defect in the affected vehicle populations based on available information. ODI will continue to monitor ignition switch performance in other Volkswagen vehicles equipped with similar components for evidence of the alleged defect. The agency reserves the right to take further action if warranted by the circumstances.

15  
10/9/02



## ENGINEERING ANALYSIS CLOSING REPORT

**SUBJECT:** Ignition switch failure resulting in potential loss of headlamp and windshield wiper function.

**EA No:** EA00-020

**Date Opened:** 10-Aug-00

**Date Closed:** -Oct-02

**SUBJECT VEHICLES:** Model year (MY) 1996 Volkswagen (VW) Jetta and Passat passenger vehicles.

**BASIS:** On February 2, 2000, the Office of Defects Investigation (ODI) opened Preliminary Evaluation PE00-006 to investigate four complaints alleging loss of headlamp or windshield wiper function in MY 1996 VW Jetta and Passat passenger vehicles. The investigation was upgraded to an Engineering Analysis on August 10, 2000, based on 15 complaints and preliminary indications from VW of high warranty claim rates on the subject components.

**ALLEGED DEFECT:** The ignition switch may fail to return to the "RUN" position after engine start, resulting in potential loss of the Power Accessory Circuit that includes the headlamps and windshield wipers.

**DESCRIPTION OF COMPONENT/VEHICLE SYSTEM:** The subject components include the ignition switch, the ignition lock cylinder, and the switch cylinder housing (Figure 1).

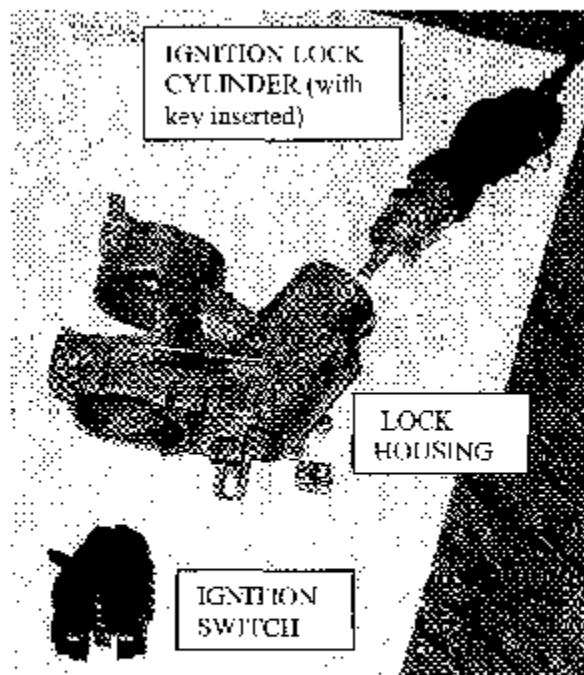


FIGURE 1. Subject Components.

When the ignition switch is turned to the "START" position by turning the key in the lock cylinder, power is interrupted to the Power Accessory Circuit which includes the headlamps, windshield wipers, air-conditioning system, and day-time running lights (where applicable). When the key is released, a spring in the ignition switch returns the switch, lock cylinder, and key to the "RUN" position, returning power to the Power Accessory Circuit.

**CORRESPONDENCE:**

NHTSA to Mfr.	Mfr. to NHTSA	Mfr. to NHTSA Supplement	Confidentiality			
			Date Requested	Date OCC Response	Attachments Requested	Attachments Granted
17-May-00	03-Jul-00	17-Jul-00	-	-	-	-
		24-Jul-00	-	-	-	-
		09-Aug-00	-	-	-	-
		24-Aug-00	-	-	-	-
03-Apr-01	20-Jun-01	28-Jun-01	-	-	-	-
		08-Feb-02	-	-	-	-
		19-Apr-02	-	-	-	-
		10-Jun-02	-	-	-	-
		25-Jun-02	-	-	-	-
		10-Sep-02	-	-	-	-

TABLE 1. NHTSA VW Correspondence.

**VEHICLE POPULATION:** VW has sold or leased approximately 108,600 subject vehicles in the United States (Table 2).

Model	Population
Jetta	88,992
Passat	19,656
Total	108,648

TABLE 2. U.S. Sales.

**PROBLEM EXPERIENCE:** Table 3 summarizes all known ODI and VW complaints and field reports related to the alleged defect in the subject vehicles.

	EA OPENED		EA CLOSED	
	ODI	MFR	ODI	MFR
REPORTS	4	11	10	28
CRASHES	0	0	0	0
INJURIES	0	0	0	0

TABLE 3. Problem Experience.

**DESIGN/PROCESS CHANGES:** Tables 4a and 4b summarize the significant design and manufacturing process/supply changes implemented by VW for ignition switch and switch cylinder parts used in the subject Passat and Jetta vehicles, with VW's reason and action.

Date	Change	Reason	VW Field Action
CW 32/95	Start of ignition switch from supplier MERIT with 2 <sup>nd</sup> spring for S-contact. VIN: TE000001/TB000001	J.D. Power Improvement	Safety Recall
CW 51/95	Start of ignition switch from supplier KOSTAL with 2 <sup>nd</sup> spring for S-contact. VIN: TE070927	J.D. Power Improvement	
CW 20/97	Base of lift bar changed, additional pocket for grease inside switch cylinder.	J.D. Power Improvement	Warranty Policy Adjustment

TABLE 4a. Passat Design/Process Changes

Date	Change	Reason	VW Field Action
20-Feb-95	VW accepted the ignition switch from supplier KOSTAL with only one spring. VIN: SM039387	J.D. Power Improvement	-
CW 41/95	Introduction of switch cylinder from supplier HUF Germany. VIN: TM037958	J.D. Power Improvement	Warranty Policy Adjustment
CW 51/95	Start of modified ignition switch with a 1 mm extension to reduce play in the cylinder. VIN: TM072787	J.D. Power Improvement	
CW 11/96	Start of B4 switch cylinder from supplier HUF Spain.	J.D. Power Improvement	
CW 45/96	Start of ignition switch from supplier MERIT with two springs. VIN: VM036652	J.D. Power Improvement	
CW 20/97	HUF Spain improves switch cylinder process CPK.	J.D. Power Improvement	-

TABLE 4b. Jetta Design/Process Changes.

VW implemented a new switch design in the Passat vehicles, beginning in MY 1998.

**PART SALES:** Figure 2 shows the trend in sales of the subject ignition switch and its successor in the period from May 1997 through April 2001. The data show high sales volumes with a seasonal pattern that peaks in summer months. VW noted that the subject switches are used as service replacement parts in almost 800 thousand VW vehicles.

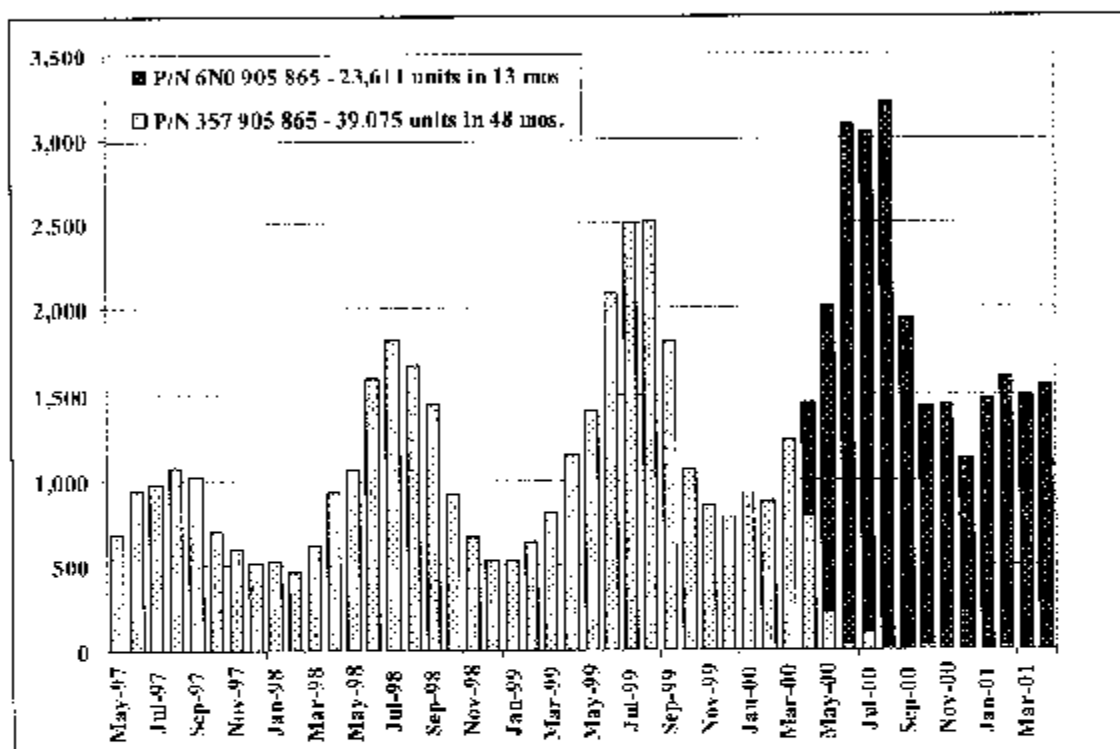


FIGURE 2. Ignition Switch Sales Trends by Calendar Month,  
48-Month Period From May-97 to Apr-01.

**SERVICE BULLETINS:** VW has not issued any dealer communications concerning the alleged defect in the subject vehicles. However, in August 1995, VW issued a technical service bulletin (# 95-07) relating to intermittent operation of the power accessory circuit in MY 1993-95 Passat vehicles. According to VW's bulletin:

**Intermittent loss of the power accessory circuit (X-circuit) can be caused by the ignition switch/lock not returning fully to the "RUN" position after the engine starts. An ignition switch that binds or does not return smoothly from the "START" position can be caused by the following:**

- Shift lock III cable mis-adjustment.
- Ignition switch and/or ignition lock binding.
- Burrs on Ignition key or duplicate keys.
- Duplicate keys that are improperly cut.

The repair procedure for TSB # 95-07 is summarized in Table 5.

Date	Vehicles	Subject	Repair Procedure
24-Aug-95	MY93-95 Passat	Ignition switch binding	<p>Check ignition switch for smooth return from "START" position to "RUN" position. If switch binds and/or key does not return fully to the "RUN" position:</p> <ul style="list-style-type: none"> <li>- Check ignition key and duplicates for burrs and remove as necessary.</li> <li>- Adjust shift lock III cable.</li> <li>- Check ignition switch function and replace as necessary.</li> <li>- Check ignition lock function and replace as necessary.</li> </ul>

TABLE 5. VW Technical Service Bulletin #95-07.

**WARRANTY:** The subject components are covered under a 2-year/24,000 mile warranty in the subject vehicles. Table 6 summarizes the warranty data for claims involving ignition switch assembly components that include information that indicates loss of the Power Accessory Circuit in all MY 1995 through 1998 Jetta and Passat vehicles equipped with the same ignition switch as the subject vehicles.

MY	Passat			Jetta		
	Volume	Claims	R/100	Volume	Claims	R/100
1995	15,718	27	0.17	79,581	33	0.04
1996	19,656	105	0.53	88,992	171	0.19
1997	11,448	34	0.30	91,870	187	0.20
1998	N/A	N/A	N/A	74,702	59	0.08
Total	52,081	195	0.37	335,095	450	0.13

TABLE 6. Warranty Claims With Indication of Loss of Power Accessory Circuit, By Model and Model Year.

**VW ASSESSMENT:** In a September 10, 2002 letter, Volkswagen notified NHTSA of a defect condition in the electrical portion of the ignition switch assembly of certain MY 1996 Volkswagen Passat passenger vehicles that may result in inoperative headlamps and windshield wipers. Volkswagen will notify owners of the problem and replace the subject switches (P/N 357 905 865) with modified parts (P/N 6N0 905 865) in Safety Recall 02V-256. The recall involves approximately 10,450 MY 1996 Passat vehicles built between production weeks 32 and

51 in 1995, a range where VW had identified supplier quality concerns (see DESIGN/PROCESS CHANGES).

In addition, Volkswagen will notify owners of approximately 20,000 MY 1996-97 Passat vehicles built from week 52 in 1995 through the end of MY 1997 production and approximately 84,500 MY 1996-97 Jetta vehicles built from week 41 in 1995 through week 45 in 1996, of a Warranty Adjustment Policy covering the subject ignition system components. These vehicles, which experienced the alleged defect at significantly lower frequencies than the recalled population, will have the warranty coverage on the subject components adjusted from 2-years/24,000 miles to 8-years/100,000 miles.

**ODI ANALYSIS:** To assess the risk associated with the alleged defect in the subject vehicles, ODI analyzed complaint, warranty, and part sales data and reviewed design/process change and other technical information submitted by VW. ODI's analysis found that there was sufficient basis for providing recall remedy to the approximately 20 weeks production of MY 1996 Passat vehicles covered by VW's campaign.

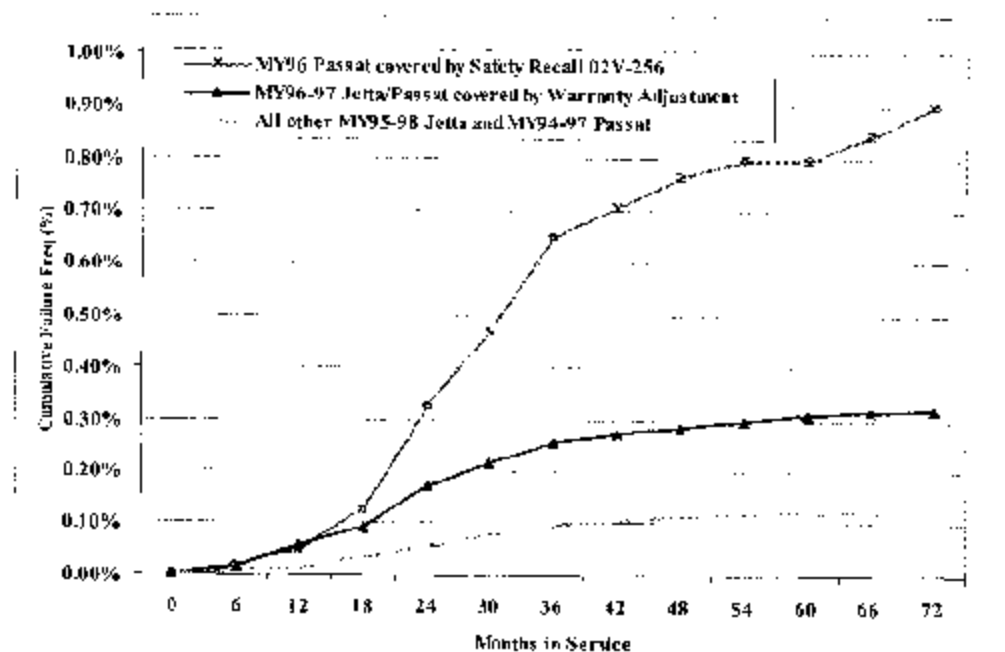


FIGURE 3. Cumulative Failure Frequencies of: (1) Recalled MY96 Passat; (2) MY96-97 Jetta/Passat Receiving Warranty Adjustment; and (3) Remaining MY95-98 Jetta and MY94-97 Passat Vehicles.

1. The reported failure data of the recalled Passat vehicles yields a failure rate that is approximately triple that of the vehicles receiving adjusted warranty coverage from VW and almost an order of magnitude greater than the remaining Jetta and Passat vehicles for which ODI collected data from VW during this investigation (Figure 3). The recalled vehicles also

21